

6G-XR: Toward next-generation XR holographic communications in 6G Smart Networks



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Never stop
designing the
digital future

i2CAT.net



Outline



- About us
- From 2D conferencing to 3D holographic comms
- Holographic comms over 5G-advanced Networks
- Open Call Opportunities
- Conclusions & Future Work



Co-funded by
the European Union

6G SNS

6G XR

About 6G-XR



- 6G eXperimental Research infrastructure to enable next-generation XR services
- Budget: 9.421.131€ Period: 2023-2025

15
partners



8
countries



36
months



 6G-XR.eu
 [@6GXR_eu](https://twitter.com/@6GXR_eu)
 [@6g-xr](https://www.linkedin.com/company/@6g-xr)



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About 6G-XR



- **Objective:** strengthen European leadership in 6G technologies by enabling next-generation XR services and infrastructures that will provide beyond-state-of-the-art capabilities towards the 6G era
- **XR Related objectives:**
 - Build a multisite Research Infrastructure
 - Integrate 5G-advanced (i.e. toward 6G) network enablers
 - Integrate multi access edge computing and cloud continuum scenarios
 - *Demonstrate the benefits for multiuser XR holographic comms*

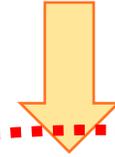


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Toward a new era in digital comms



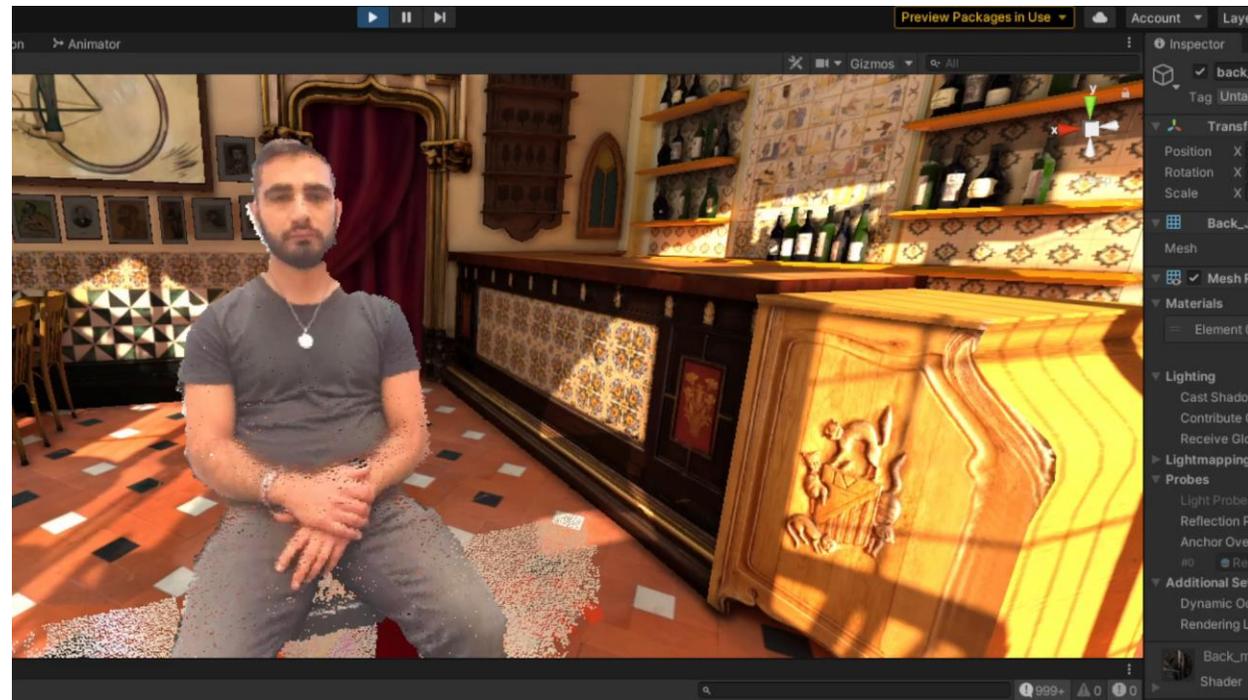
HoloMIT: Our Social VR / holographic comms platform



6-8 Mbps per User
Up to 6-8 Users per Session



40-100 Mbps per User
GPU-compliant coding



Use Cases: not just entertainment...



Use Cases: not just entertainment...



Advances... but not yet there!



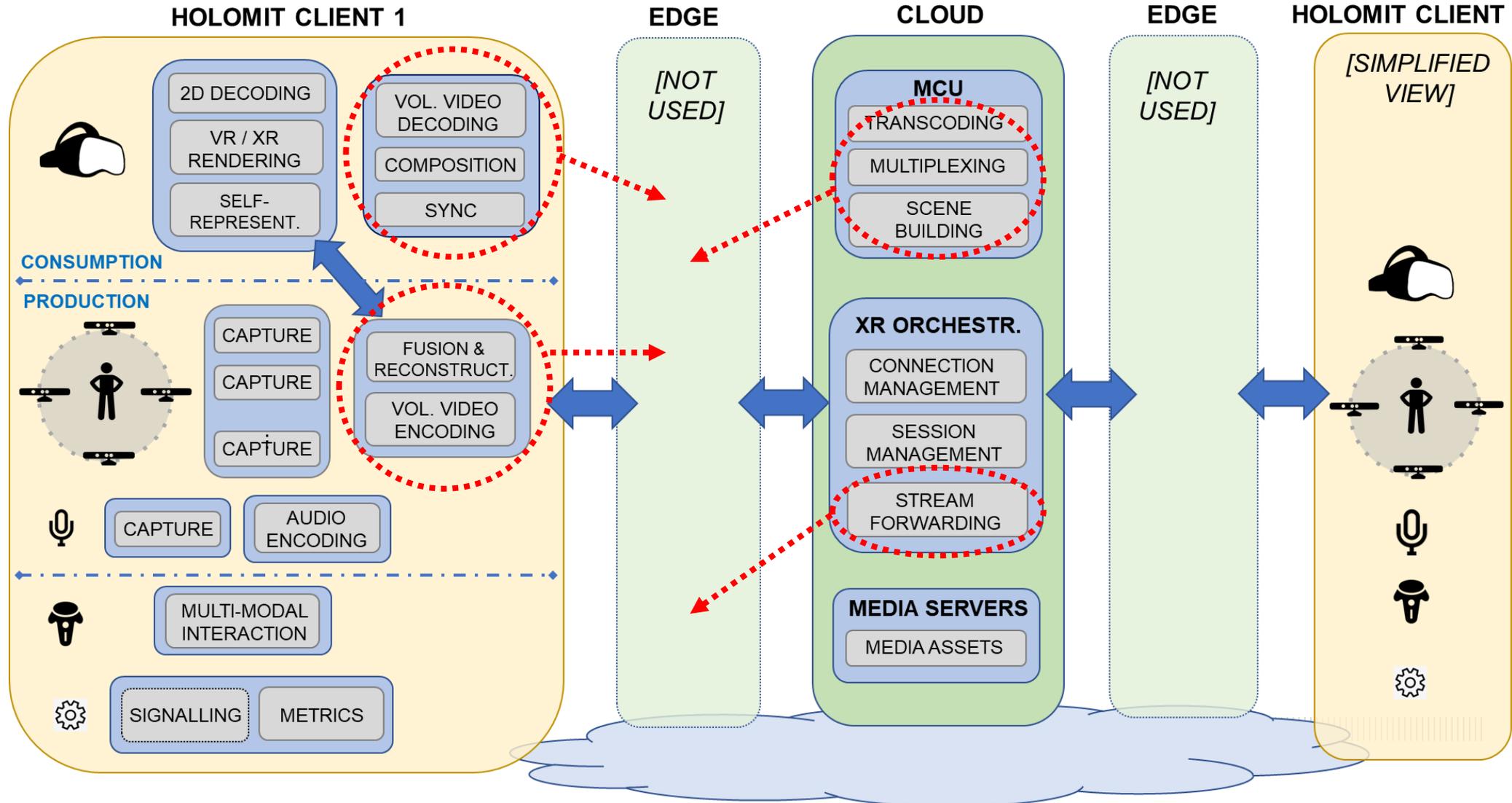
- Key remaining challenges and limitations
 - Visual Quality
 - Cost / Deployment Complexity
 - Resources Usage / Scalability
 - Ubiquity
 - Interoperability
- (Toward) 6G Smart Networks to the Rescue!
 - Latency
 - Bandwidth
 - Computing Continuum / Smart Orchestration
 - Dynamic Reconfiguration / Quality on Demand (QoD)
 - Reliability & Trustworthiness

Outline

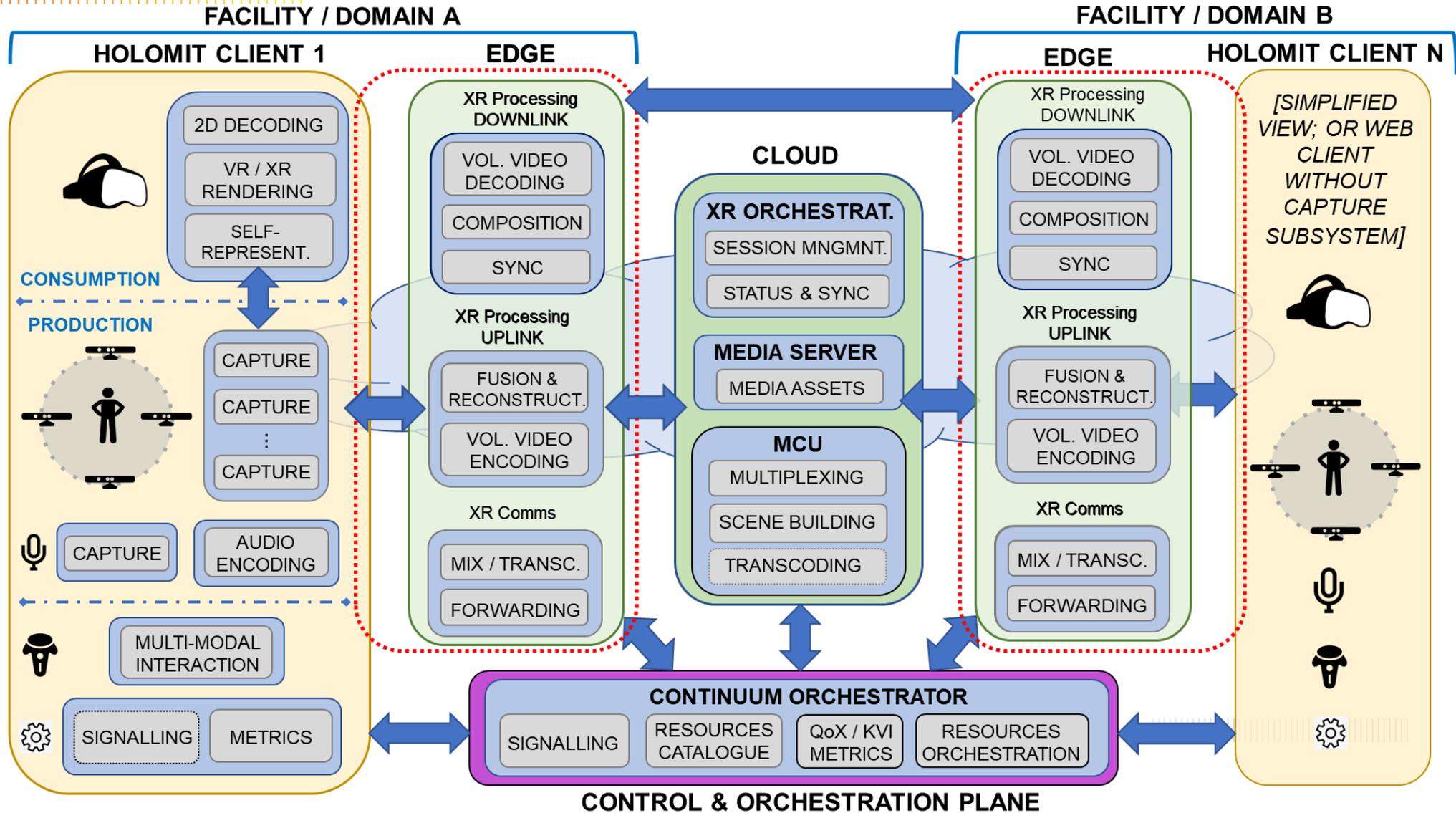


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HoloMIT 'as it is' now



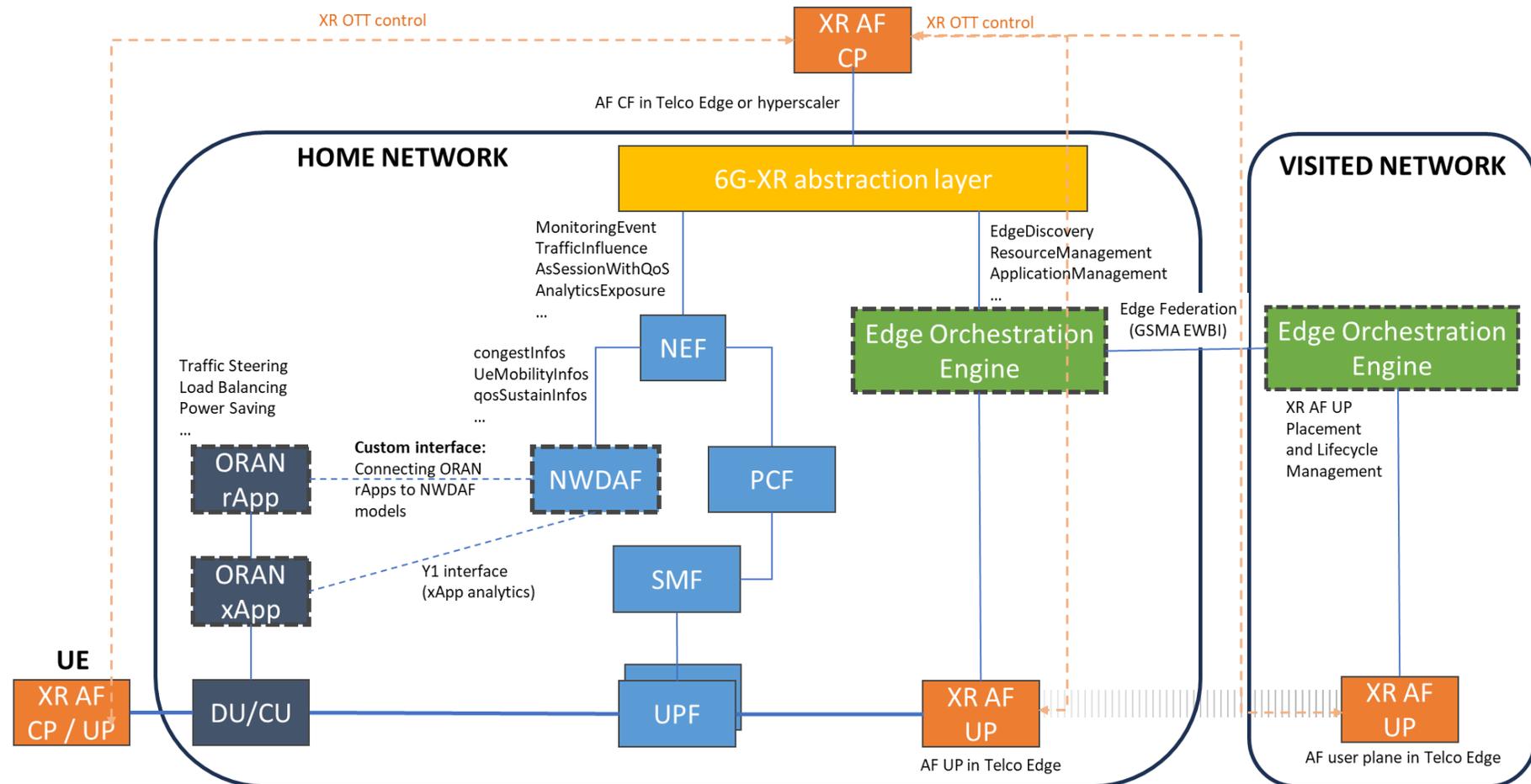
HoloMIT with Virtualized Media Functions (VMF) over the (6G) Computing Continuum



NaaS paradigm for XR – Simplified APIs for app providers



- Network-assisted Rate Recommendation API
- Edge Discovery & Selection and Application Management API



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Open Call Opportunities



- Third Parties are encouraged to participate in Open Call projects funded by 6G-R
- 3 rounds of Open Calls, with overall Budget of 1.8M€, and 60K€ / project
- Open Call 1. Network, computing and XR enablers (2023) **[Open until Dec. 2023]**
XR enablers extending the ones provided by the project
- Open Call 2. Innovative enablers shaping the 6G vision (2024)
- Open Call 3. Replicability of verticals over 6G-XR infrastructure (2025)

Check our website and Social Media Channels!

Ask us, if interest!

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Conclusions and Future Work



- Holographic comms as the next-gen interaction *medium*
 - Proven benefits over videoconferencing and avatar-based Metaverse platforms
 - Wide applicability in relevant sectors
- Lots of remaining challenges ... but opportunities
 - Performance, Interoperability, Costs, Reliability & Trustworthiness
- 5G-Advanced networks as key enablers toward the Metaverse
 - Increased performance
 - Cloud Continuum and Federation across domains
 - Smart Orchestration and Reconfiguration
 - NaaS
- Future Work → Metaverse = Human + Environment & Virtual + Real World

Thank you!



Questions? Comments?

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